Caldasia 24(2) 2002: 229-238

AN ACCOUNT ON THE *CECROPIA* SPECIES (CECROPIACEAE) OF PERU

Sinopsis de las especies peruanas de *Cecropia* (Cecropiaceae)

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ABSTRACT

A survey and a key to the *Cecropia* species of Peru are presented with notes on distribution, ecology, and myrmecophily. A new Peruvian species is described: *C. chlorostachya*.

Key words. *Cecropia*, Cecropiacceae, Peru.

RESUMEN

Se presenta una lista y una clave de las especies de *Cecropia* del Perú con detalles de su distribución, ecología y mirmecofilia. Se describe una nueva especie peruana: *C. chlorostachya*.

Palabras clave. *Cecropia*, Cecropiaceae, Perú.

INTRODUCTION

The choice of subject of this contribution in memory of Pilar Franco is obvious, as the last fieldwork we carried out together in behalf of the preparation of a monograph of *Cecropia* for Flora Neotropica took place in Peru, November-December 1997. This work added essential data to the knowledge of the genus in Peru and the understanding of the taxonomy of the whole genus.

The present contribution comprises a survey of the species recorded for Peru with the synonyms based on material collected in Peru, a key to the species, and the description of a new species discovered in 1997.

HISTORY

The first extensive cllections of the genus were made by Ruiz and Pavón. Duplicates of these collections sent to several European herbaria were used for the description of a number of species, six by Trécul (1847) and seven by Klotzsch (1847). In the hitherto only comprehensive treatment of the genus for the whole of the Neotropics by Miquel (1853) in Flora Brasiliensis, 21 species were recognized, 11 of them based on Peruvian material, one (*C. goudotiana*) based on a collection from Colombia, and none of the other Andean countries. Additional contributions to the knowledge of the Peruvian *Cecropia* flora in more recent times are those by Snethlage (1923) and Mildbraed (1925), each one of them describing a new species for the country; Macbride (1937), who prepared the treatment of the genus for the Flora of Peru including two new species; Cuatrecacas (1956, 1982), who described several new species for Peru, Galiano-Sánchez (1976), who presented a survey of the species of the Kcosñipata and Manú valleys; and, finally, Berg and Franco-Rosselli (1996), who added two names to the Peruvian flora.

DISTRIBUTION

Twenty-three *Cecropia* species are presently recognized for Peru, three of them endemic. Less species occur in Bolivia, 15 and two of them endemic, but more in Ecuador and Colombia, 27 and 38, respectively. But if one takes into account only the species occurring on the eastern slopes of the Andes and the adjacent lowlands, the numbers are 17 and 20 respectively. All 17 species found in eastern Ecuador also occur in Peru, and of those found in eatern Colombia only three not. Eight out of the 23 species found in Peru are montane or submontane, three of them are the endemic species, four of them extend from central or northern Peru along the eastern slopes of the Andes northwards to Ecuador, Colombia, or even Venezuela, and *C. angustifolia*, ranges from Bolivia to Mexico. The majority of the lowland species are upper Amazonian ones, with various ranges of distribution, some extending from Bolivia to Colombia, some confined to the northwestern part of the Amazon Basin (and in Peru only found in Loreto and/or Amazonas), some extending from central Peru to Ecuador or to Colombia, and others from northern Peru to Bolivia. Five of the lowland species have wide distributions.

SURVEY OF THE SPECIES FOUND IN PERU

1. *C. albicans* Trécul - Andean, endemic, (Pasco to San Martín), montane; 2000-2500 m; white-leaved; with two quite distinct forms: a. trees with short, almost horizontal branches, the leafy twigs densely hairy, trichilia present and myrmecophytic (San Martín and Pasco); and b. trees with branches departing in acute angles from the trunk, the leafy twigs glabrous, trichilia absent and non-myrmecophytic (San Martín and Huánuco).

2. *C. andina* Cuatrec. - Andean, (Amazonas and San Martín), extending to Colombia, montane; 1600-1900 m; morphologically and ecologically rather uniform; nonmyrmecophytic.

3. *C. angustifolia* Trécul (*C. acutifolia* Trécul, *C. digitata* Klotzsch) - Andean, widespread, from Mexico to Bolivia, montane (to lowland); mostly 1300-2400 m, sometimes down to 400 m; morphologically rather variable; myrmecophytic (a non-myrmecophytic «form» with ample brown pith in the internodes , found in southern Ecuador might occur in northern Peru). The number of lateral veins in the free part of the midsegment is predominantly 23-35 pairs, but some specimens found in Cuzco (at 1500 m) and Ucayali (at ca. 400 m) have 14-20 pairs (see Fig. 1).

4. *C. chlorostachya* C.C. Berg & P. Franco, sp. nov. (see below) - Andean, endemic (Amazonas and San Martín), montane; 1700-2100 m; morphologically and ecologically uniform; non-myrmecophytic (?).

5. *C. concolor* Willd. - Amazonian, lower to upper (Cuzco and Madre de Dios); low altitudes, non-inundated places; morphologically and ecologically uniform; myrmecophytic.

6. *C. distachya* Huber - Hylean, (Amazonas to Madre de Dios; low altitudes, non-inundated places; morphologically rather variable, ecologically uniform; myrmecophytic.

7. *C. engleriana* Snethl. (*C. yarinensis* Cuatrec.) - Amazonian, upper (Amazonas to Madre de Dios), extending to Colombia and Bolivia (also Brazil and Venezuela); low altitudes, non-inundated places or flood plains; morphologically rather uniform, ecologically somewhat variable; myrmecophytic.

8. *C. ficifolia* Snethl.(*C. ferreyrae* Cuatrec., *C. standleyi* J.F. Macbr.) - Amazonian, upper (Amazonas to Madre de Dios), extending to Colombia and Bolivia (also Brazil and Venezuela); low altitudes, non-inundated places; with two rather distinct «forms»: a. with incisions of the lamina less than halfway

to the petiole, plant parts conspicuously white hairy, occurring disperse, in small gaps or in the margin of large (treefall) gaps, in or close to the foothills of the Andes; b. the incisions down more than halfway to the petiole, the midsegment broadly spathulate to obovate, plant parts densely less hairy, common in secndary growth, more distant from the Andes; myrmecophytic.

9. *C. herthae* Diels - Amazonian, upper (Loreto), extending to Colombia; low altitudes, non-inundated places; morphologically and ecologically very uniform; myrmecophytic.

10. *C. latiloba* Miq. - Hylean, (Loreto, Madre de Dios, Ucayali); low altitudes, inundated places, along black water rivers or in depressions (with poorly aerated and sandy soils) away from white water rivers; morphologically and ecologically uniform; myrmecophytic.

11. *C. litoralis* Snethl. - Amazonian, upper, (Loreto), extending to Colombia (also in the Pacfiic coastal region of Ecuador and Colombia); low altitudes, inundated places; morphologically uniform, ecologically uniform in Amazonia; myrmecophytic.

12. *C. marginalis* Cuatrec. - Amazonian, upper (Amazonas); low altitudes, non-inundated places; morphologically and ecologically uniform; myrmecophytic.

13. *C. membranacea* Trécul (*C. setico* J.F. Macbr. *C. tessmannii* Mildbr.) - Amazonian, upper to lower (and Pacific Coastal region, mainly of Colombia), (Amazonas to Madre de Dios); low latitudes, (mostly) inundated places, white water; morphologically rather uniform, ecologically somewhat variable (including a «form» known as «pungara» in Madre de Dios, see Davidson & Fisher, 1991); myrmecophytic.

14. *C. montana* Snethlage (*C. alexandrina* Cuatrec.) - Amazonian (to Subandean), lowland (San Martin to Madre de Dios), extending to Colombia; 400-1200 m, non-inundated places; morphologically and ecologically rather uniform; myrmecophytic.

15. *C. pastasana* Diels - Andean, (San Martín to Junín), extending to Colombia, montane (to submontane); 900-2300 m; ± white-leaved; in the southern part of the species range, the leaves are more conspicuously white above and the species is found at higher altitudes than in the northern part; myrmecophytic.

16. *C. polystachya* Trécul (*C. flagellifera* Trécul, *C. klotzschiana* Miq., *C. leucophaea* Miq., *C. nivea* Klotzsch, *C. pinnatiloba* Klotzsch, *C. ruiziana* Klotzsch, *C. scabra* Klotzsch) - Amazonian, upper (San Martín and Loreto to Madre de Dios), extending to Bolivia (also Brazil); lowland (to submontane); up to 1800 m, non-inundated places; morphologically and ecologically rather variable; myrmecophytic.

17. *C. putumayonis* Cuatrec. - Amazonian, upper (Amazonas, Loreto, and San Martín), extending to Colombia; lowland; low altitudes; morphologically and ecologically uniform; myrmecophytic.

18. *C. sciadophylla* C.Mart. (*C. inchuensis* Cuatrec.) - Hylean, (Amazonas to Puno); low altitudes, non-inundated places; morphologically and ecologically uniform; non-myrmecophytic.

19. *C. strigosa* Trécul (*C. bicolor* Klotzsch, *C. multiflora* Snethl., *C. rugosa* Cuatrec.) - Andean, (San Martín to Madre de Dios), submontane to montane to lowland; 400-1900 m; morphologically and ecologically rather variable, as with regard to altitude; myrmecophytic.

20. *C. tacuna* C.C. Berg & P. Franco - Andean, endemic (San Martin to Cuzco), montane; 1800-2800 m, occurring at Macchu Pichu; morphologically and ecologically uniform; non-myrmecophytic.

21. *C. telenitida* Cuatrec. - Andean, (Cajamarca and San Martin), extending to Venezuela, montane; 2300-2600 m; white-leaved; morphologically and ecologically uniform (in Peru); non-myrmecophytic.

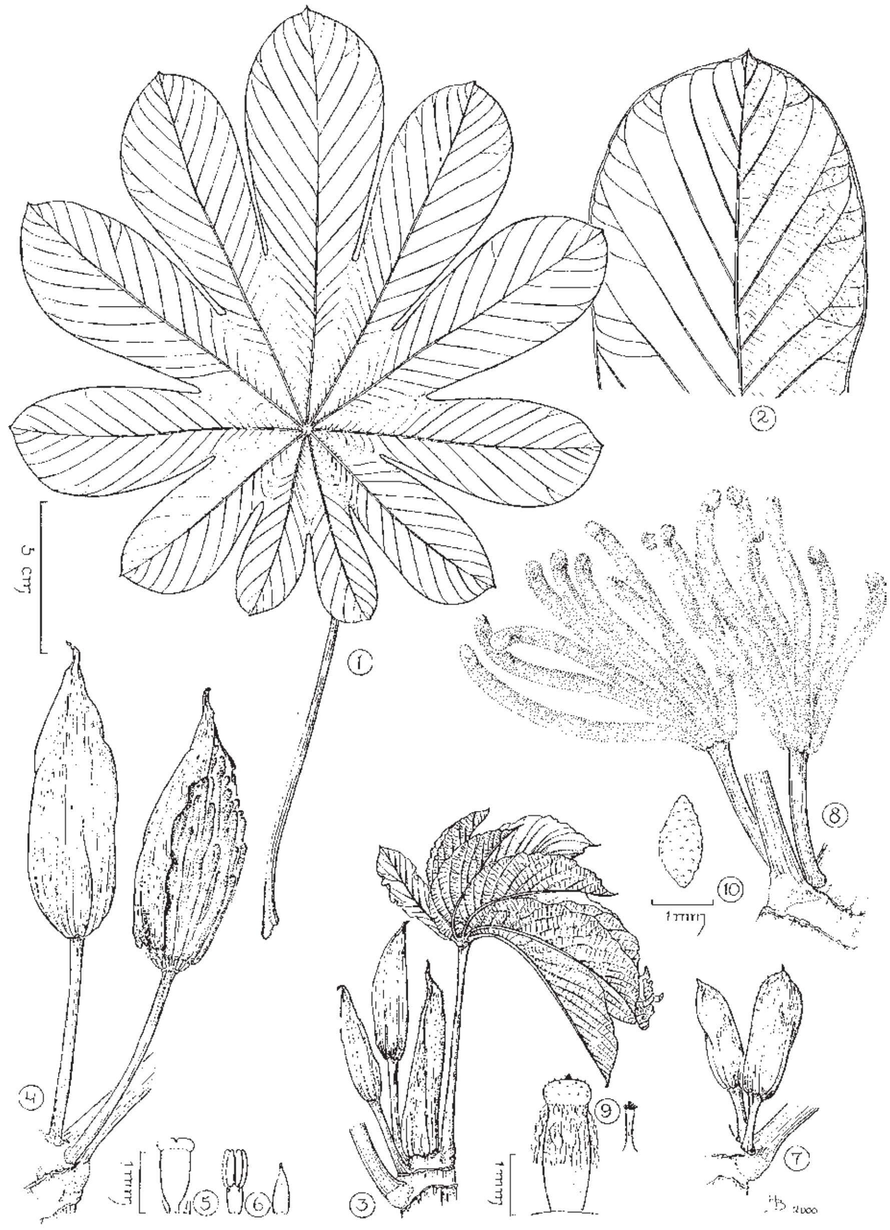

Figura 1. *Cecropia angustifolia*. 1, lamina, reduced, 2, apex of lamina and venation, 3, stipules, young leaf, staminate inflorescences with spathes, and base of petiole with trichilium, 4, pair of staminate inflorescences with spathes and just at anthesis, 5, staminate flower, 6, stamen and filament (*Berg & Franco 1753*); 7, pair of pistillate inflorescences with spathes and base of petiole with trichilum; 8, pair of pistillate inflorescences at anthesis and base of petiole with trichilium, 9, pistillate flower and style, 10 fruit (*Berg & Franco 1750*). By Hendrieke Berg (Voss, Norway).

22. *C. utcubambana* Cuatrec. (*C. puberula* C.C. Berg & P. Franco) - Andean, (Amazonas to Madre de Dios), submontane to lowland (400-1650 m), non-inundated places; with two somewhat distinct forms: a. with arachnoid indumentum lacking in the areoles of the lamina beneath, in the northern part of the species range, mostly between 1000 and 1500 m; and b. with arachnoid indumentum often present in the areoles, in the southern part of the range, down to ca. 400 m; myrmecophytic.
23. *C. velutinella* Diels - Andean, (San Martin), extending to Ecuador, montane; 1200-1700 m; morphologically and ecologically uniform; ± myrmecophytic.

NEW SPECIES

Cecropia chlorostachya C.C. Berg & P. Franco, sp. nov. (Fig. 2).

Type. Peru. San Martín: prov. Rioja, rd. Rioja-Pomacocha, nr. km 391-392, ca. 2000 m, 8 dec 1997 (_ fl-fr), *Berg & Franco 1802* (holotype, MOL; isotypes, BG, COL).

Diagnosis. *Stipulis dense pubescentibus subpersistentibus, corpusculis muellerianis roseis, inflorescentiae staminatae spicis sub anthesi viridibus distincta.*

Description. Tree, up to 22 m tall. Leafy twigs 2-3.5 cm thick, whitish (due to the indumentum), white to brownish subvillous to subhirsute to hirtellous, sometimes only near the scars of the stipules, also with dense arachnoid indumentum and brown pluricellular hairs. Lamina (sub)coriaceous, ca. 50 x 50-60 x 60 cm; segments 7-10, the free parts of upper segments elliptic to oblong, the incisions in the upper part of the lamina down to ca. 6/10, apices acuminate; upper surface (almost) smooth, rather sparsely puberulous to hirtellous, also with sparse arachnoid indumentum; lower surface rather sparsely subvillous to subhirsute to hirtellous on the veins, arachnoid indumentum in the areoles, extending to the main veins, on the main veins also brown pluricellular hairs, mostly densely near the petiole; lateral veins in the free part of the midsegment ca. 15-20 pairs, submarginally loop-connected, mostly unbranched; petiole ca. 25-55 cm long, white subvillous to subhirsute and with dense arachnoid indumentum; trichilia fused, the brown indumentum intermixed with short and (partly with) long white hairs, the Müllerian bodies pinkish; stipules 15-32 cm long, subpersistent, pinkish, densely (sub)villous, also with dense arachnoid indumentum and brown pluricellular hairs outside, sparsely to (partly) densely hairy inside. Staminate inflorescences in pairs, patent, or the spikes spreading; peduncle ca. 3-6 cm, white subhirsute to hirtellous and with dense arachnoid indumentum; spathe ca. 12-15 cm long, white, (sub)villous, with dense arachnoid indumentum and with brown pluricellular hairs outside, inside hairy; spikes 7-8, 15-17 x 0.6-0.8 cm, before anthesis yellow, at anthesis green, with stipes 0.5-1 cm long and hirtellous; rachis hairy with stiff and crinkled (arachnoid) hairs; perianth tubular, 1.8-2 mm long, the apex plane, sparsely muriculate, arachnoid indumentum below the apex; anthers ca. 0.8 mm long, with short appendages, detached at anthesis, remaining attached to the filament by 2 filiform connections between the connective and the upper margin of the filament. Pistillate inflorescences in pairs or solitary, patent to spreading, the spikes straight to curved upwards, subtended by up to 3 cm long, whitish, caducous bracts; peduncle ca. 7-10 cm long, with indumentum as in the staminate inflorescence; spathe 10-12 cm long, pinkish, indumentum similar to the staminate inflorescence; spikes 4, 4-12 x ca. 0.4-0.5, to 15 x 1 cm in fruit, subsessile or with stipes to 0.4 cm long with dense arachnoid indumentum; rachis hairy with stiff and crinkled hairs; flowers often basally connate; perianth ca. 2.5 mm long, the apex plane to

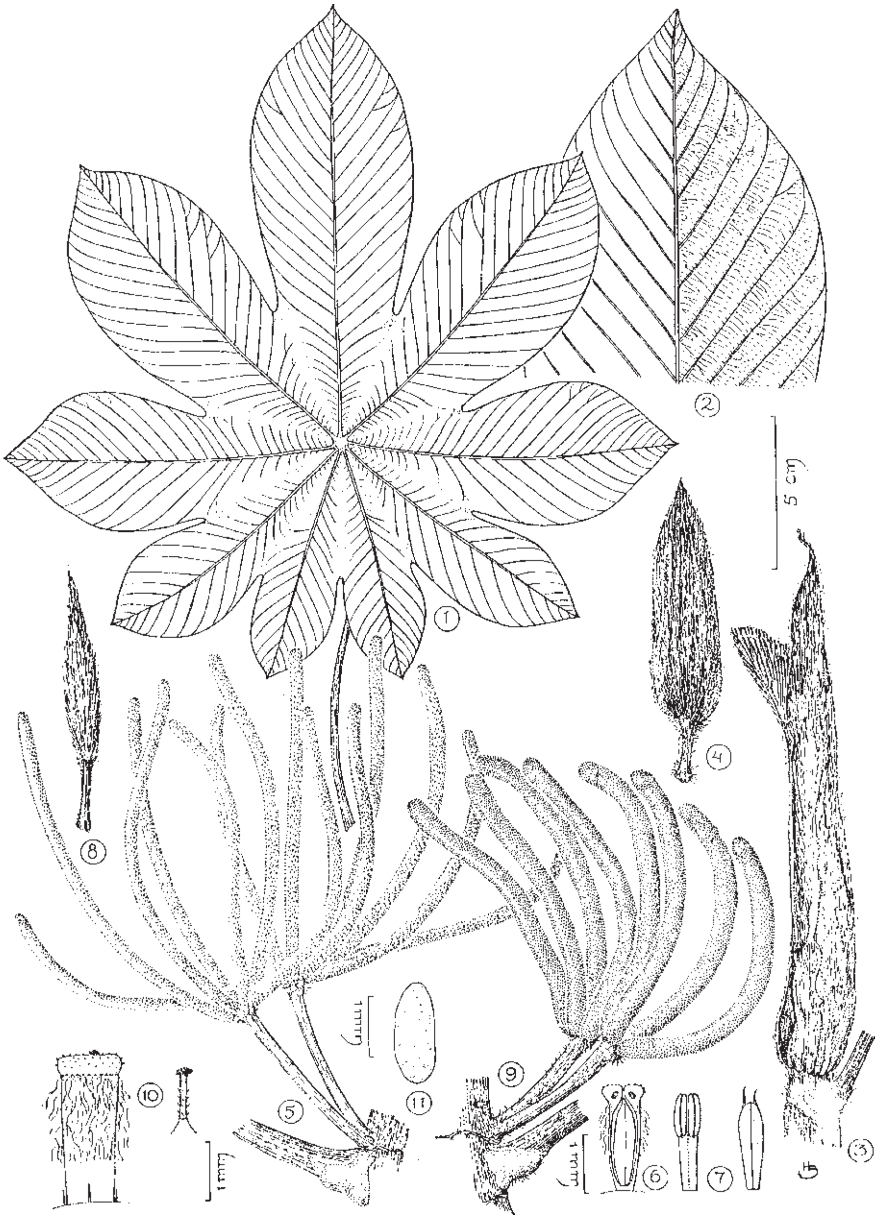

Figura 2. *Cecropia chlorostachya*. 1, lamina, reduced (*D. N. Smith et al. 4686*), 2, apex of lamina and venation, 3, stipules and base of petiole with trichilium (*C. Díaz et al. 4567*); 4, staminate inflorescence with spathe, 5, pair of staminate inflorescences at anthesis and base of petiole with trichilium (*D.N. Smith et al. 4686*); 6, staminate flower (longitudinal section), 7, stamen and filament after detachment of anther (*Berg & Franco 1799*); 8, pistillate inflorescence with spathe (*C. Díaz et al. 4567*); 9, pair of pistillate inflorescences at anthesis and base of petiole with trichilium, 10, pistillate flower and style, 11, fruit (*Berg & Franco 1802*). By Hendrieke Berg (Voss, Norway).

slightly convex and muriculate, arachnoid hairs below the apex, also inside below the style channel; style short; stigma comose. Fruit ellipsoid to oblongoid, ca. 1.5-2 cm long, (almost) smooth.

Additional specimens. PERU. **Amazonas:** Prov. Chachapoyas, Rodrigues Mendoza, Cochamal, Montaña de Yanamonte, 4 jul 1991 (_ fl-fr), *C. Díaz et al. 4567* (MO). San Martín: Prov. Rioja, rd. Rioja-Pomacocha, ca. 1750 m, 8 dec 1997 (_), *Berg & Franco 1799* (BG); Prov. Rioja, rd. Pedro Ruíz-Moyobamba, km 390, Venceremos, 2100 m, 7-9 aug 1983 (_), *D. N. Smith et al. 4686* (BG).

This species is distinct by the dense and white indumentum on various parts, the subpersistent stipules, and the green spikes of the staminate inflorescence. Only in *C. distachya*, the spikes are sometimes green before anthesis (*Berg & Franco 1597*). The species is probably not myrmecophytic.

KEY TO THE *CECROPIA* SPECIES OF PERU

1 Trichilia absent. 2
1' Trichilia present. 6
2 Incisions of the lamina down to the petiole and the segments often petiolate; Amazonian region .... *C. sciadophylla*
2' Incisions of the lamina not down to the petiole; Andean region 3
3 Lamina with 7-10(-11) segments 4
3' Lamina with 10-18 segments 5
4 Lamina chartaceous to subcoriaceous, without arachnoid indumentum above; Andes .... *C. andina*
4' Lamina (sub)coriaceous, with (often dense) arachnoid indumentum above; Andes .... *C. telenitida*
5 Midsegment of the lamina with 15-35 pairs of lateral veins; upper surface of the lamina ± scabrous; Andes .... *C. tacuna*
5' Midsegment of the lamina with 10-16 pairs of lateral veins; upper surface of the lamina smooth; Andes .... *C. albicans*
6 Trichilia separate (in 2 lateral patches) 7
6' Trichilia fused. 11
7 Trichilia on a subscrotiform (abaxially bulgingd) base of the petiole; Andes. .... *C. pastasana*
7' Trichilia not on a subscrotiform base of the petiole 8
8 Lamina (sub)coriaceous, with (often dense) arachnoid indumentum (and thus usually white) above; Andes .... *C. telenitida*
8' Lamina chartaceous to subcoriaceous, without arachnoid indumentum above 9
9 Leafy twigs (sub)glabrous, smooth, with a bluish waxy layer; Andes .... *C. andina*
9' Leafy twigs hairy. 10
10 Petiole as long as ca. half the diameter of the lamina; terminal buds usually curved, not inflated; Amazonian region ...... *C. marginalis*
10' Petiole much longer than half the diameter of the lamina; termial buds straight, ± inflated; Amazonian region to Andes .... *C. strigosa*
11 Lamina with 10-20(-24) segments 12
11' Lamina with 7-10(-11) segments 18
12 Terminal bud ± inflated; lateral veins in the free part of the midsegment 8-17 pairs 13
12' Terminal bud not inflated; lateral veins of the free part of the midsegment 15-80 pairs 14
13 Lamina coriaceous, with ± dense arachnoid indumentum and smooth above; Andes (2200-2500 m). .... *C. albicans*
13' Lamina chartaceous to subcoriaceous, without arachnoid indumentum and scabrous or smooth above; Amazonian region to Andes (up to 1900 m). .... *C. strigosa*
14 Lateral veins in the free part of the midsegment 50-8 pairs; Andes .... *C. velutinella*
14' Lateral veins in the free part of the midsegment 14-50 pairs 15
15 Incisions of the lamina down to the petiole or not more than 2 cm from the petiole; lamina erect in the bud; Amazonian region. .... *C. herthae*

15' Incision of the lamina down to more than 2 cm from the petiole; lamina often reflexed in the bud 16

16 Lateral veins in the free part of the midsegment ca. 35-50 pairs; Amazonian region. .... *C. montana*

16' Lateral veins in the free part ca. 15-35(-45) pairs 17

17 Upper segments of the lamina lobate; peduncle of the inflorescences usually longer than 8 cm; Amazonian region (to Andes, up to 1350 m) .... *C. polystachya*

17' Upper segments of the lamina entire; peduncle of the inflorescences usually to 8 cm long; Andes (mostly 1200-2200 m, sometimes down to 400 m) .... *C. angustifolia*

18 Lamina without arachnoid indumentum in the areoles beneath 19

18' Lamina with arachnoid indumentum in the areoles beneath 22

19 Base of the lamima entire or shallowly lobed, the upper part 3-lobed; Amazonian region .... *C. putumayonis*

19' Base of the lamina ± distinctly incised. 20

20 Spikes of the staminate inflorescence ca. 4-7(-15); peduncle of the pistillate inflorescence 15-50 cm long; stipules mostly reddish; Amazonian region, non-inundated places .... *C. utcubambana*

20' Spikes of the staminate inflorescence ca. 25-50; peduncle of the pistillate inflorescence ca. 5-15(-20) cm long; stipules mostly greenish. 21

21 Terminal buds ± inflated; stipes of spikes of the staminate inflorescence (0.5-)1-2.5 cm long; spikes of the pistillate inflorescence 3-7; Amazonian region to Andes (up to 1900 m), non-inundated places .... *C. strigosa*

21' Terminal buds not inflated; stipes of spikes of the staminate inflorescence 0.5-1 cm long; spikes of the pistillate inflorescence (2-)4; Amazonian region, usually inundated places. .... *C. membranacea*

22 Lateral veins in the midsegment loop-connected marginally 23

22' Lateral veins in the midsegment loop-connected submarginally (just within the margin) 32

23 Lateral veins in the free part of the midsegment 24-32 pairs 24

23' Lateral veins in the free part of the midsegment 12-24 pairs 25

24 Inflorescences pendulous, the peduncle usually 10-22 cm long; Amazonian region. .... *C. engleriana*

24' Inflorescences patent, the peduncle usually 1-8 cm long; Andes (mostly 1200-2200 m) .... *C. angustifolia*

25 Incisions of the lamina down to near (to 1.5) cm from the petiole 26

25' Incisions of the lamina down at most 4 cm from the petiole. 27

26 Inflorescences pendulous, the peduncles usually 10-22 cm long; Amazonian region .... *C. concolor*

26' Inflorescences patent, the peduncles usually 1-8 cm long; Andes to Amazonian region (400-1500 m) .... *C. angustifolia*

27 Lamina (sub)coriaceous, usually smooth above 28

27' Lamina chartaceous to subcoriaceous, mostly ± scabrous above 29

28 Free parts of the upper segments of the lamina obovate to subobovate; Amazonian region .... *C. distachya*

28' Free parts of the upper segments of the lamina oblanceolate; Andes (mostly 1200-1500 m) .... *C. angustifolia*

29 Spathes with dense arachnoid indumentum, peduncles usually 10-20 cm long, and lateral veins in the free part of the midsegment 21-24 pairs .... *C. engleriana*

29' Spathes without or with sparse arachnoid indumentum, peduncles to 10 cm long, and/or lateral veins in the free part of the midsegment to 20 pairs 30

30 Lamina attached to the petiole rather close to its base; spikes of the staminate inflorescence usually ca. 15-20, usually ca. 15-20 cm long; stigma penicillate; Amazonian region, inundated places .... *C. latiloba*

30' Lamina attached to the petiole far from its base; spikes of the staminate inflorescence usually ca. 5-15 and/or usually 5-12 cm long; stigma peltate (lowland) or comose (montane) 31

31. Stipules and spathes chartaceous to membranaceous when dry, sparsely hairy; stigma peltate; Amazonian region, inundated places .... *C. litoralis*

31' Stipules and spathes subcoriaceous when dry, densely hairy; stigma comose; Andes (mostly 1200-2200 m) .... *C. angustifolia*

32 Trichilia on subscrotiform (abaxially bulging) base of the petiole 33

32' Trichilia not on a subscrotiform base of the petiole 34

33 Lamina with ± dense arachnoid indumentum above; spikes of the staminate inflorescence 10-25; Andes (900-2200 m) .... *C. pastasana*

33' Lamina without arachnoid indumentum above; spikes of the staminate inflorescence ca. 25-100; Amazonian region and Andes (up to 1900 m) .... *C. strigosa*

34 Leafy twigs (sub)glabrous, smooth, bluish with a waxy layer; Andes .... *C. andina*

34' Leavy twigs ± hairy. 35

35 Upper lamina segments lobate; Amazonian region (to Andes, up to 1350 m) .... *C. polystachya*

35' Upper lamina segment entire 36

36 Lamina (sub)coriaceous 37

36' Lamina chartaceous to subcoriaceous 39

37 Stipules subpersistent; Müllerian bodies pinkish; spikes of staminate inflorescence 7-8; spikes of the pistillate inflorescence 4, often curved; Andes .... *C. chlorostachya*

37' Stipules caducous, or if subpersistent, then the Müllerian bodies white, the spikes of the staminate inflorescence (usually) 10-25(-40), and the spikes of the pistillate inflorescence often more than 4, straight, and often thickened towards the base 38

38 Lateral veins in the free part of the midsegment usually 12-17 pairs; spikes of the pistillate inflorescence 2-4, 8-15 cm long at anthesis; Amazonian region ...... *C. distachya*

38' Lateral veins in the free part of the midsegment usually 15-30 pairs; spikes of the pistillate inflorescence often more than 4, 1-7 cm long at anthesis; Andes ..... *C. angustifolia*

39 Petiole as long as ca. half the diameter of the lamina; stipules ca. 15-45 cm long, glabrous inside; terminal bud usually curved; Amazonian region .... *C. marginalis*

39' Petiole much longer than half the diameter of the lamina; stipules often shorter than 15 cm, or if longer, then often hairy inside; terminal bud straight 40

40 Lateral veins in the free part of the midsegment unbranched; incisions down to ca. 5/10, or if more deeply, then the midsegment broadly spathulate; spikes of the staminate inflorescence 8-13 and the peduncle usually 10-20 cm long; Amazonian region. .... *C. ficifolia*

40' Lateral veins in the free part of the midsegment mostly branched; incisions down to 5/10-8/10, the midsegment obovate, elliptic, subobovate, oblong, or oblanceolate; spikes of the staminate inflorescence ca. 25-100, or if ca. 10, then the peduncle shorter than 10 cm 41

41 Lateral veins in the free part of the midsegment usually ca. 20-35 pairs, the midsegment usually oblanceolate; lamina often deflexed in the bud; Andes (mostly 1200-2200 m) .... *C. angustifolia*

41' Lateral veins in the free part of the midsegment usually 8-17 pairs, the midsegment usually obovate to elliptic or subobovate; lamina patent in the bud; lowland to submontane 42

42 Terminal bud ± inflated; lamina often ± bullate above; indumentum of the leafy twig puberulous to hirtellous or to subhirsute; Amazonian region (non-inundated places) to Andes (up to 1900 m) .... *C. strigosa*

42' Terminal bud not inflated; lamina not bullate above; indumentum of the leafy twig partly (sub)setulose; Amazonian region, inundated places .... *C. membranacea*

ACKNOWLEDGMENTS

The fieldwork in Peru (1997) has been carried out with a grant from the Norwegian Research Council (Conservation and Biological Diversity Program). The preparation of the illustrations have been supported by the Olav Grolle Olsen Fund (University of Bergen). The author is much indebted to Dr. José Rios Trigoso, Universidad Nacional Agraría, La Molina, for support and arrangements made for fieldwork (1997). Additional support has been given by the Universidad Nacional Agraria de la Selva, Facultad de Recursos Naturales Renovables, Tingo María, and Dr. J. Sánchez (Tarapoto). The author is indebted to Dr. J. F. Veldkamp (Leiden) for translating the diagnosis into Latin, and to Iván Andrés Gil Chaves (Bogotá) and Xenia Villavicencio (La Paz) for helping with translation of text into Spanish.

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Recibido: 16/10/2001
Aceptado: 28/05/2002